

Medicare Quality Monitoring System (MQMS) Report:

Beneficiary Characteristics and Utilization

November, 2003

Myles Maxfield, Ph.D.

Prepared by:
Mathematica Policy Research, Inc.
Washington, D.C.; Cambridge, MA; and Princeton, NJ

Under contract with:
Centers for Medicare & Medicaid Services (CMS),
Center for Beneficiary Choices/ Quality Measurement and Health Assessment Group

Contract No. GS-10F-0050L, Task Order No. CMS-02-01175
Contact: Dr. Lein Han (410) 786-0205

CONTENTS

Chapter	Page
EXECUTIVE SUMMARY	xii
I. INTRODUCTION.....	1
II. CHARACTERISTICS AND TRENDS OF THE MEDICARE AND FEE-FOR SERVICE (FFS) POPULATIONS.....	3
III. UTILIZATION.....	8
A. Most Common Health Problems, 1992 and 2001	8
B. Most Common Medical Procedures, 1992 and 2001	14
APPENDIX A: SPECIFICATIONS FOR BENEFICIARY CHARACTERISTICS AND UTILIZATION MEASURES	

LIST OF FIGURES

Figure	Page
II.1. Trend in the Total Medicare and the Part A Full-Year Fee-for-Service FFS Population: 1992 - 2001	3
II.2. Age of FFS and Medicare Populations: 1992 and 2001	4
II.3. Sex and Race of FFS and Medicare Populations, 2001	5
II.4. Urban/Rural and Region of Residence of FFS and Medicare Populations, 2001.....	6
II.5. Eligibility Status and Dual Enrollment Status of FFS and Medicare Populations, 2001.....	7
III.1. Most Common Diagnoses for Hospital Stays: Discharge Rates per 1,000 Beneficiaries in 1992 and 2001.....	8
III.2. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Gender, 1992 and 2001	9
III.3. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Race, 1992 and 2001	10
III.4. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Medicaid Dual Enrollment, 1992 and 2001	11
III.5. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Urban/Rural Beneficiary Residence, 1992 and 2001.....	12
III.6. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Region, 1992 and 2001	13
III.7. Most Common Hospital Procedures per 1,000 Beneficiaries in 2001, Discharge Rates in 1992 and 2001	14
III.8. Common Hospital Procedures per 1,000 Beneficiaries, Discharge Rates in 1992 and 2001	15
III.9. Discharge Rates of Five Common Procedures by Gender, 1992 and 2001	16
III.10. Discharge Rates per 1,000 Beneficiaries of Five Common Procedures by Race, 1992 and 2001	17
III.11. Discharge Rates per 1,000 Beneficiaries of Five Common Procedures by Medicaid Dual Enrollment, 1992 and 2001	18

III.12.	Discharge Rates per 1,000 Beneficiaries of Five Common Procedures by Urban/Rural Beneficiary Residence, 1992 and 2001	19
III.13.	Discharge Rates per 1,000 Beneficiaries of Five Common Procedures, by Region, 1992 and 2001	20

ACKNOWLEDGEMENTS AND DISCLAIMER

Mathematica Policy Research, Inc. (MPR) prepared this report under contract GS-10F-0050L, task order CMS-02-01175, with the Centers for Medicare & Medicaid Services. MPR would like to acknowledge the contribution of RTI International, which prepared the databases, draft Appendix B tables, and draft data processing documentation. We would also like to acknowledge the direction and comments of Lein Han, Neil Gittings, and Aaron Goldfarb of CMS. At MPR, the report was prepared by Myles Maxfield, Angela Merrill, Amy Quinn, Michelle McInnis, Randall Brown, Daryl Hall, and Alfreda Holmes.

Opinions and interpretations expressed herein are not necessarily the position of CMS or any other federal agency.

ABOUT MQMS

BACKGROUND

The Medicare Quality Monitoring System (MQMS) is an ongoing system that processes, analyzes, interprets and disseminates health related data to monitor the quality of care delivered to Medicare fee-for-service beneficiaries. The MQMS was initiated to provide useful information to the CMS PROs (Peer Review Organizations, currently renamed as Quality Improvement Organizations) program and has been evolved to address growing public concerns over quality of care, patient safety, provider accountability and patient choice. It is directed by the Centers for Medicare & Medicaid Services (CMS) with assistance from its contractors. MQMS development and production involves a diverse group of CMS staff, including program managers, clinical area team leaders (clinicians), epidemiologists, statisticians, and data analysts in the central and regional offices. CMS also consulted with leading experts in other federal agencies—such as the Agency for Health Care Research and Quality, the Centers for Disease Control—and in quality improvement organizations and academia.

INTENDED USE OF THE MQMS DATA

The MQMS is designed with the intention to support data-driven decision-making regarding quality improvement and payment/coverage policymaking. Development and production of the 2003 MQMS measures and respective methodologies were primarily aiming at providing input for broad and high-level policy making and program planning within CMS.

The 2003 MQMS **describes** trends, patterns, and variations in health status, disease- and procedure-specific utilization, outcomes and process of care at the national and state level that are related to CMS quality improvement program and initiatives, patient safety and payment/coverage policies. Without further analysis and manipulation of the data, the 2003 MQMS data are **inadequate to explain the specific causes** of the trends, patterns, and variations.

In addition to CMS internal use, MQMS provides data on Medicare quality of care for the AHRQ National Healthcare Quality Report (NHQR) and National Healthcare Disparities Report (NHDR).

- Specifically the MQMS data are to be used for:
 - Identifying potential quality problems
 - Tracking program implementation

- Suggesting project ideas for quality improvement program
 - Targeting interventions
 - Prioritizing activities & allocation of resources
 - Focusing on a particular problem
 - Raising research questions/hypothesis for further investigation
- Further well-deliberated multivariate analysis is required for the MQMS data to be meaningful and useful for:
 - Drawing conclusions on cause-effect association between the QIOs process of care measures with the MQMS outcome measures
 - Evaluating individual QIO, providers in a state or state performance
 - Evaluating directly the effectiveness of the QIO program and other CMS quality improvement initiatives and payment/coverage policies

POPULATION AND HEALTH ISSUES EXAMINED

The population under study consists of Medicare fee-for-service (FFS) beneficiaries. MQMS is limited to FFS beneficiaries because of the current unavailability of encounter data from Medicare managed care plans. The MQMS 2003 edition monitors the following types of quality measures:

- Mortality and readmission rates, length of stay, and cost of hospitalizations for three conditions —acute myocardial infarction (AMI), heart failure and stroke
- Process of care and progression of diseases for diabetes
- Mortality and readmission rates following cancer-related and cardiac-related high-risk surgical procedures
- Patient safety
- Preventable hospitalization

METHODS

The 2003 MQMS analysis is limited to the national and/or state level, presenting longitudinal and/or cross-sectional descriptive statistics for various demographic and geographic subgroups. The results of MQMS 2003 edition are age-sex adjusted and not risk adjusted. The age-sex adjustment eliminates state-to-state and year-to-year variations in the age and sex composition but not the comorbidities or severity of illness of the population. The age-sex adjusted data preclude interpretation alluding to state or provider performance.

MQMS results are based on data from all fee-for-service beneficiaries and claims, rather than a sample of such beneficiaries and claims. This means that the rates presented in MQMS reports do not contain sampling error. MQMS rates are not presented with confidence intervals or significance testing, since these intervals and tests are based on properties of sampling error. This approach implies that the FFS population is not interpreted as a sample drawn from a super-population, such as all Medicare beneficiaries or FFS beneficiaries from another time period. The one exception is the MQMS diabetes results, which are based on a five percent sample of full-year fee-for-service Medicare beneficiaries. Thus, rates presented in the MQMS diabetes reports are subject to sampling error, and confidence intervals or significance testing are presented.

MQMS results are subject to measurement error in the CMS Denominator File and MedPAR database, as well as to modeling error resulting from the age-sex adjustment. CMS continues to investigate the magnitude of these errors.

PRODUCTS

The MQMS products are a series of reports on quality measures, a set of tables on CMS' web site, plus the data files at the person and aggregate level used to generate the reports and documentation of the methodology and data processing. The reports are available on the CMS website; the data files and documentation reside on the CMS mainframe. To facilitate the use of the data and replication of the analysis, CMS makes available SAS programs and data processing documentation. Access to the data can be granted to CMS analysts on request. Other federal agencies and CMS contractors may obtain the data through a formal data request process.

MQMS 2003 reports include:

- MQMS Report: Beneficiary Characteristics and Utilization, 1992-2001
- MQMS Report: Acute Myocardial Infarction (AMI), 1992-2001
- MQMS Report: Patient Safety, 2000 and 2001
- MQMS Report: Heart Failure, 1992-2001
- MQMS Report: Preventable Hospitalizations, 1995-2001
- MQMS Report: Stroke, 1992-2001
- MQMS Report: Cancer-Related High-risk Surgeries I, 1992-2001
- MQMS Report: Cardiac-Related High-risk Surgeries II, 1992-2001
- MQMS Report: Diabetes, 1992-2001

EXECUTIVE SUMMARY

This is the first of a series of 11 Medicare Quality Monitoring System reports. The report tracks the composition of the Medicare population over the study period and compares it to the composition of the fee-for-service (FFS) population. It also tracks the utilization of the FFS population as a whole and by demographic subgroup over the study period. The report is important for two reasons. First, it assists CMS in directing Medicare services to the needs of the changing Medicare population. Second, it assesses the degree to which results for the FFS population are generalizable to the Medicare population. The report addresses four specific questions:

- What are the characteristics of the Medicare population and how have those characteristics changed over the past ten years?
- How similar is the FFS population to the Medicare population?
- What are the most common health problems of the Medicare population, and how have they changed over the past ten years?
- What are the most common medical procedures received by the Medicare population, and how have these changed over the past ten years?

Characteristics of Medicare Beneficiaries

- The Medicare population included 40.1 million beneficiaries in 2001. It grew steadily from 36 million to over 40 million beneficiaries between 1992 and 2001.
- The age profile changed moderately between 1992 and 2001. Those under age 65 are individuals with disabilities, end-stage renal disease (ESRD), or both. The population under 65 increased, suggesting that a greater proportion of Medicare beneficiaries have a disability. The size of the population age 65 to 74 decreased, and the size of the population older than 75 increased slightly. This pattern suggests that the average age of the Medicare 65+ population has increased.
- The distributions of sex, race, location of residence, reason for Medicare enrollment, and dual-enrollment status in the FFS population are similar to those of all Medicare beneficiaries.

Representativeness of the FFS Population

- The FFS population closely resembles the population of all Medicare beneficiaries in several demographic characteristics. As noted above, it has a different age distribution, and may have different health risk factors. The complex shift in the age distribution may influence the trends in some quality indicators. (Figures II.6 through II.9).

Common Health Problems

- The most common health problems over the ten-year study period from 1992-2001 were heart failure, pneumonia, stroke, coronary atherosclerosis, and COPD.
- The discharge rates for heart failure were higher for beneficiaries with disabilities, older beneficiaries, minorities, dually enrolled beneficiaries, and beneficiaries living in the South.
- The discharge rates for pneumonia were higher for older beneficiaries, males, dually enrolled beneficiaries, and those in rural areas and in the South.
- The rates for stroke were higher for older beneficiaries, African Americans, dually enrolled beneficiaries, and those living in the South.
- The rates for coronary atherosclerosis were higher for younger beneficiaries, males, whites, dually enrolled beneficiaries, and those living in the South.
- The discharge rates for COPD were higher for beneficiaries with disabilities, dually enrolled beneficiaries, and those living in rural areas and the South.

Common Procedures

- The most common procedures during the study period were other cardiovascular operations,¹ blood transfusions, cardiac catheterization, coronary arteriography, and digestive system operations.
- The discharge rates for other cardiovascular operations were highest for younger beneficiaries, men, African Americans, those with ESRD, dually enrolled beneficiaries, and those living urban areas and in the South.

¹ Other cardiovascular operations exclude some common cardiovascular procedures such as CABG, PTCA, and open heart surgery.

- For blood transfusions, the discharge rates were highest for older beneficiaries, African Americans, those with ESRD, dually enrolled beneficiaries, and those living in the South.
- For cardiac catheterization, the discharge rates were highest among younger beneficiaries, men, whites, those with ESRD, dually enrolled beneficiaries, and those living in the South.
- The discharge rates for coronary arteriography were higher for younger beneficiaries, men, those with ESRD, dually enrolled beneficiaries, and those living in the South and Midwest.
- Finally, the discharge rates for digestive system operations were highest for older beneficiaries, African Americans, Medicaid buy-in beneficiaries, those with ESRD, and those living in urban areas.

MEDICARE QUALITY MONITORING SYSTEM (MQMS) REPORT:

BENEFICIARY CHARACTERISTICS AND UTILIZATION

I. INTRODUCTION

With over 40 million enrollees nationwide, the Medicare program is one of the largest health insurance programs in the world. Responsible for program costs and the quality of services, the Centers for Medicare & Medicaid Services (CMS) has for the past several years developed the Medicare Quality Monitoring System (MQMS), a monitoring system that uses longitudinal program administrative data to monitor the quality of medical care of Medicare beneficiaries who are not enrolled in a managed care plan. MQMS is a component of CMS's efforts to monitor and improve patient safety and health care quality, and to produce public reports on provider performance.

This report—the first of a series of 11 reports in 2003—provides background for the entire 2003 series. This report tracks the composition of the Medicare population over the study period and compares it to the composition of the fee-for-service (FFS) population. It also tracks the utilization of the FFS population as a whole and by demographic subgroup over the study period. The report is important for two reasons. First, it assists CMS in directing Medicare services to the needs of the changing Medicare population. Second, it assesses the degree to which results for the FFS population are generalizable to the Medicare population. The report addresses four specific questions:

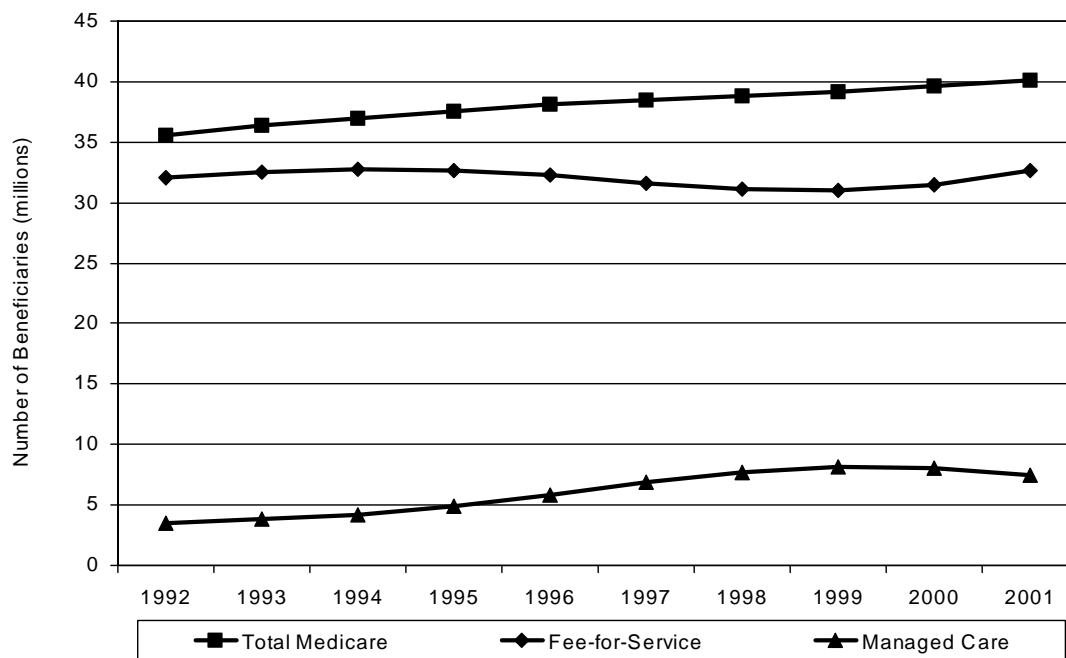
- What are the characteristics of the Medicare population and how have those characteristics changed over the past ten years?
- How similar is the FFS population to the Medicare population?
- What are the most common health problems of the Medicare population, and how have they changed over the past ten years?

- What are the most common medical procedures received by the Medicare population, and how have these changed over the past ten years?

Chapters II and III describe the FFS population from 1992 through 2001 (hereafter called the “study period”) in terms of its demographic characteristics, place of residence by U.S. region, reason for Medicare enrollment, health conditions, and medical/surgical procedures performed on those who were hospitalized. Appendix A presents the definitions of the FFS population, diagnoses, procedures, and the demographic variables. Appendix B presents the detailed tables on which the report is based. Appendix C presents the ICD-9 codes included in each of the Surveillance Diagnostic Groups (SDGs) and Surveillance Procedure Groups (SPGs) used in the report.

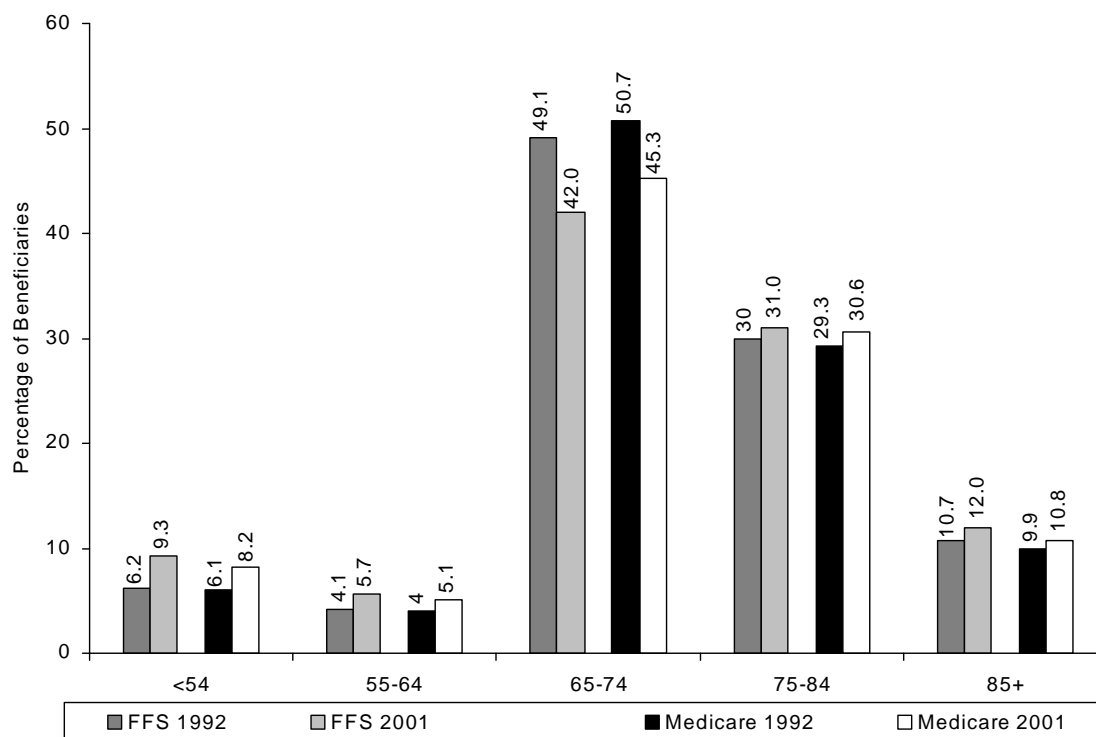
II. CHARACTERISTICS AND TRENDS OF THE MEDICARE AND FEE-FOR SERVICE (FFS) POPULATIONS

Figure II.1. Trend in the Total Medicare and the Part A Full-Year Fee-for-Service FFS Population: 1992 - 2001



SOURCE: CMS Denomination File. 2000 and 2001 figures for total Medicare enrollment are from the CMS Data Compendium, as Statistical Supplement Data for these years are not yet available.

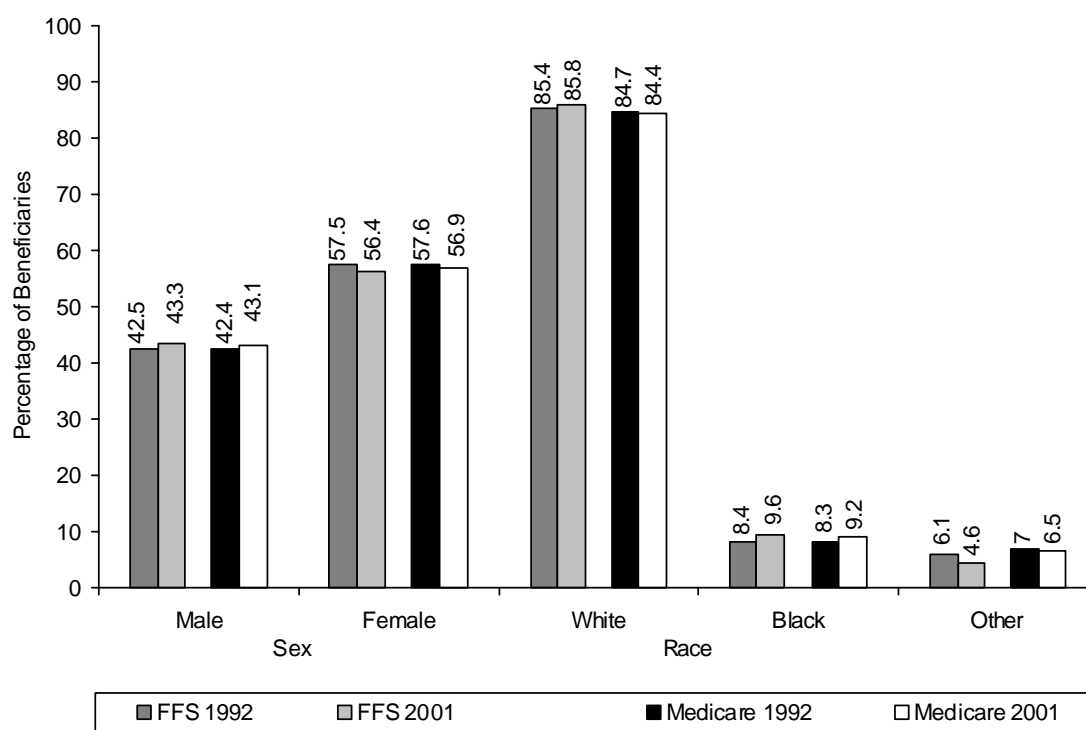
- The Medicare population included 40.1 million beneficiaries in 2001. It grew steadily from 36 million to over 40 million beneficiaries between 1992 and 2001.
- The FFS population consists of people eligible for the entire year for Medicare Part A and not enrolled in a Medicare managed care plan. Several MQMS quality measures also require beneficiaries to have been continuously eligible for Medicare for the previous 12 months or until death. In 2001, this population numbered 32.6 million beneficiaries, 81 percent of all Medicare beneficiaries. The FFS population rose slightly from 32.1 million in 1992 to 32.7 million in 1995, fell to 31.0 million in 1999, and rose to 32.6 in 2001.
- The difference between the Medicare population and the FFS population is approximately equal to the population of Medicare beneficiaries enrolled in managed care organizations. The Medicare managed care population rose from 3.5 million in 1992 to a peak of 8.2 million in 1999 and fell to 7.5 million in 2001. This pattern reflects the switch made by beneficiaries into Medicare managed care from 1995 through 1999 and the subsequent trend in returning to FFS as managed care plans dropped out of the M+C program.

Figure II.2. Age of FFS and Medicare Populations : 1992 and 2001

SOURCE: CMS MedPAR and Denominator databases

- The age profile changed moderately between 1992 and 2001. Those under age 65 are individuals with disabilities, end-stage renal disease (ESRD), or both. The population under 65 increased, suggesting that a greater proportion of Medicare beneficiaries have a disability. The size of population age 65 to 74 decreased, and the size of the population older than 75 increased slightly. This pattern suggests that the average age of the Medicare 65+ population has increased.
- Relative to the Medicare population, the FFS population has a slightly greater proportion of beneficiaries under age 65, a slightly smaller proportion in the 65-75 age group, and a slightly higher proportion over age 75.

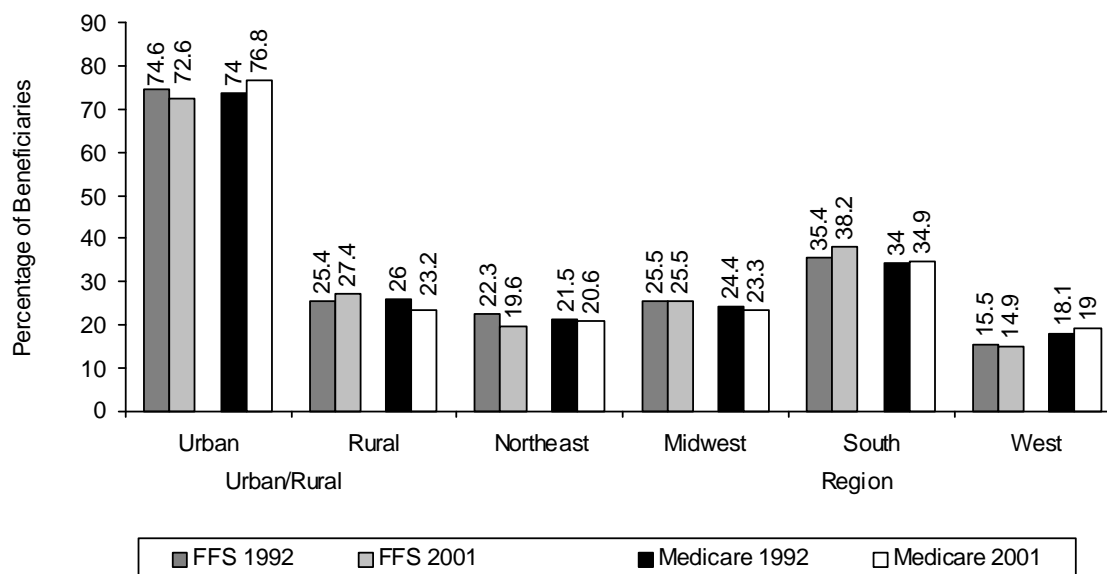
Figure II.3. Sex and Race of FFS and Medicare Populations, 2001



SOURCE: CMS MedPAR and Denominator databases

- Women outnumber men somewhat in the Medicare population because women live longer, on average. The sex and race distributions are nearly the same in 1992 and 2001, shifting very slightly toward male and African American beneficiaries.
- The sex and race distributions in the FFS population are nearly identical to those in the Medicare population.

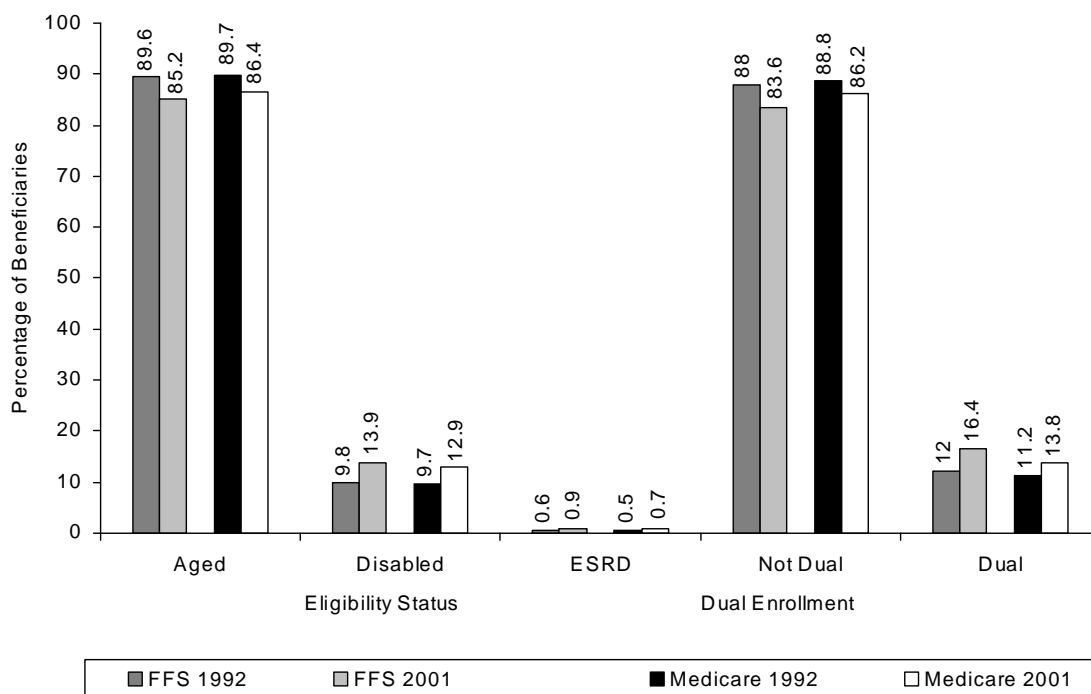
Figure II.4. Urban/Rural and Region of Residence of FFS and Medicare Populations, 2001



SOURCE: CMS MedPAR and Denominator databases

- A larger share of both populations lives in the South than in other regions, and the smallest proportions of both populations live in the West. The geographic distribution of the Medicare population was stable as well, shifting very slightly toward beneficiaries who live in rural areas and the South.
- The Medicare population is slightly more urban than the FFS population, with 23 percent of the Medicare population and 27 percent of the FFS population living in rural areas (left portion of Figure II.4). Relative to the Medicare population, the FFS population is slightly more concentrated in the Midwest and the South, and slightly less concentrated in the Northeast and the West.

Figure II.5. Eligibility Status and Dual Enrollment Status of FFS and Medicare Populations, 2001



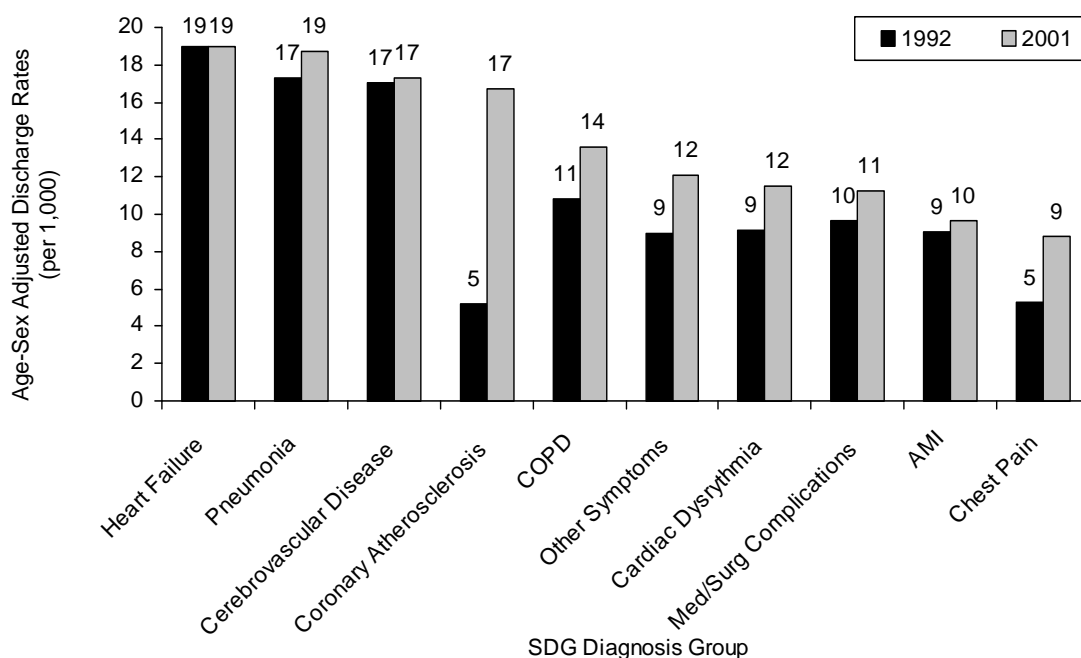
SOURCE: CMS MedPAR and Denominator databases

- In the Medicare population in 2001, 86 percent of beneficiaries are eligible for Medicare by virtue of their age, and 13 percent are eligible because they have disabilities. The remaining one percent is eligible because of ESRD. There was a moderate shift in the Medicare population toward beneficiaries who are eligible because of a disability and who are dually enrolled in Medicaid.
- The proportion of the FFS population with disabilities is nearly the same as that of the Medicare population. Finally, the proportion of MQMS beneficiaries who are dually eligible is slightly higher than in the Medicare population.
- The right portion of Figure II.5 shows that 16 percent of MQMS beneficiaries are dually enrolled in the Medicaid program, similar to the 14 percent for the general Medicare population.
- Detailed demographic characteristics of the Medicare population, including figures by state, are presented in Appendix Table B.1.
- Appendix Table B.2 shows detailed characteristics of the FFS populations including characteristics by state.

III. UTILIZATION

A. Most Common Health Problems, 1992 and 2001

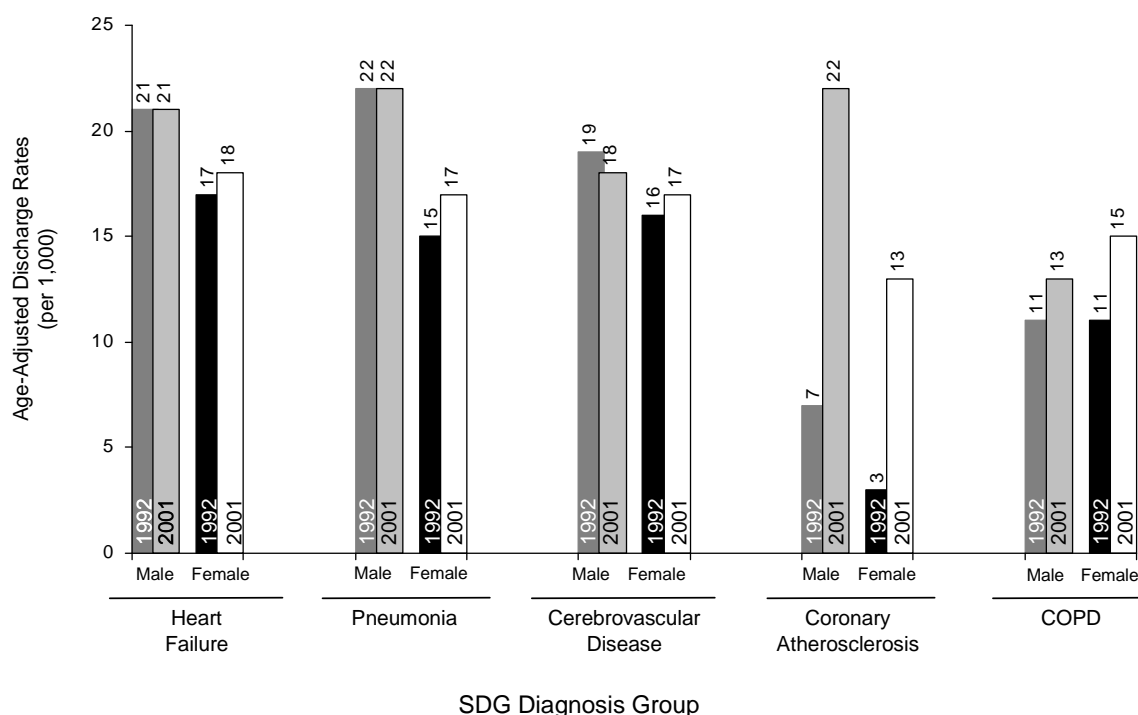
Figure III.1. Most Common Diagnoses for Hospital Stays: Discharge Rates per 1,000 Beneficiaries in 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- Among individuals in the FFS population who had a hospital stay in 2001, the most common diagnoses were, in descending order of prevalence, heart failure; pneumonia and influenza; cerebrovascular disease; coronary atherosclerosis; chronic obstructive pulmonary disease (COPD); cardiac dysrhythmia; complications of medical and surgical care; acute myocardial infarction (AMI); and chest pain (Appendix Table B.3). Diagnoses are defined in terms of ICD-9 codes, grouped on the basis of the CMS Surveillance Diagnosis Groups (SDGs), defined in Appendix C.
- Although most of the common diagnoses have stayed relatively the same over the 10-year period, there were several exceptions. Discharge rates for cardiac-related diagnoses increased the most over the period. The discharge rate for coronary atherosclerosis more than tripled from 5.2 per thousand discharges to 16.7 per thousand discharges, and the rate for chest pain increased from 5.3 to 8.8. The COPD discharge rate increased from 10.8 to 13.6. On the other hand, the discharge rate for ischemic heart disease fell markedly from 11.1 per thousand at the beginning of the decade to 1.2 per thousand at the end of the decade, making it no longer one of the most common diagnoses (Table B.5).

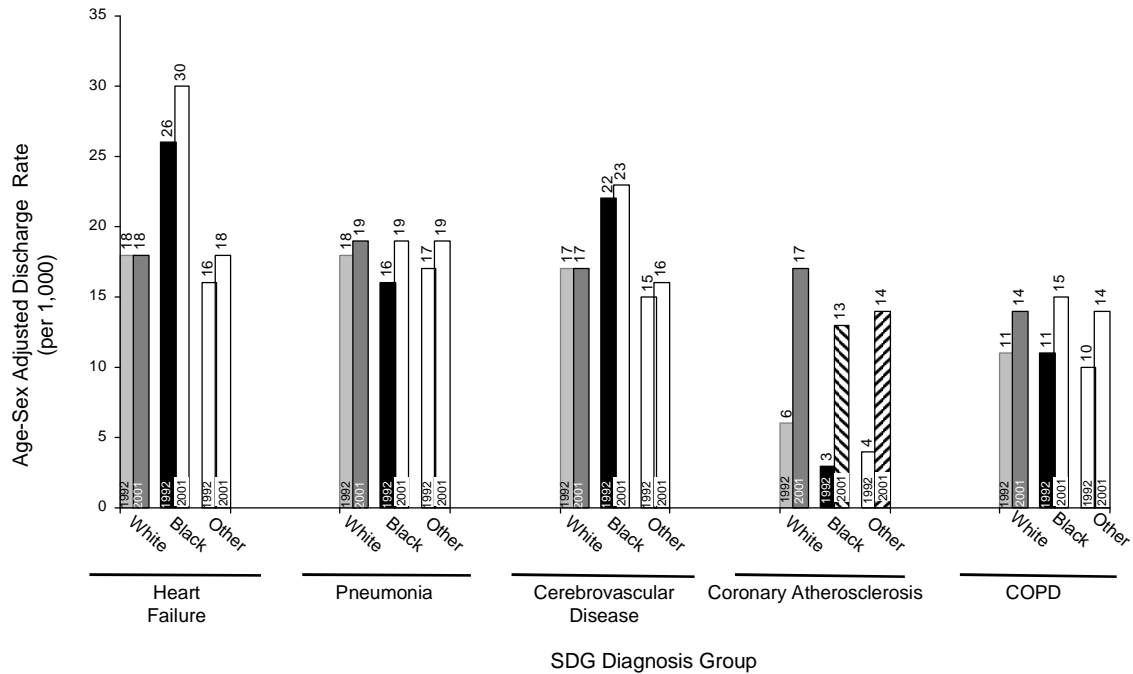
Figure III.2. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Gender, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- Four of the five most common diagnoses were more common in men than women in 2001. COPD is the exception, the discharge rate being approximately the same for men and women in 2001.
- For three of the common diagnoses (heart failure, pneumonia, and cerebrovascular disease), the discharge rates for men fell slightly, while it rose slightly for women. Discharge rates for women are catching up to those of men for several of these diagnoses.
- Detailed diagnosis discharge rates by demographic group, region, state, and year are presented in Appendix Table B.3.

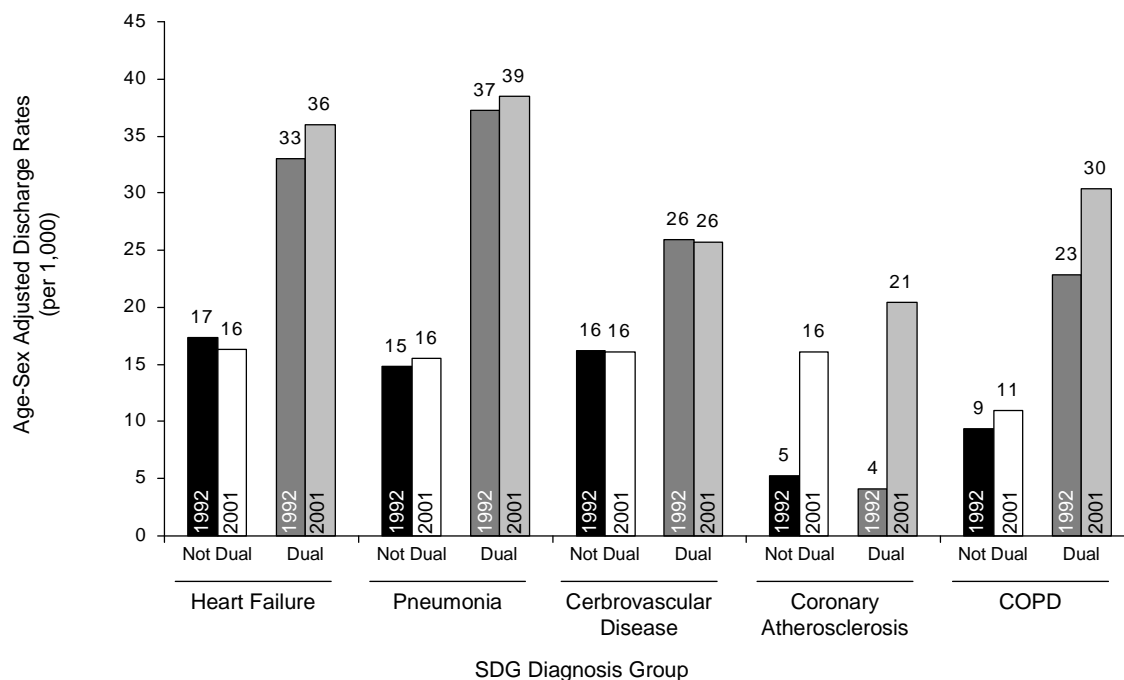
Figure III.3. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Race, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- The discharge rates for heart failure and cerebrovascular disease were higher for African Americans than for other races. The rate for atherosclerosis was higher in whites than in other races.
- The discharge rate for heart failure rose among African Americans, while the rate for whites remained constant and the rates for other races rose less rapidly.

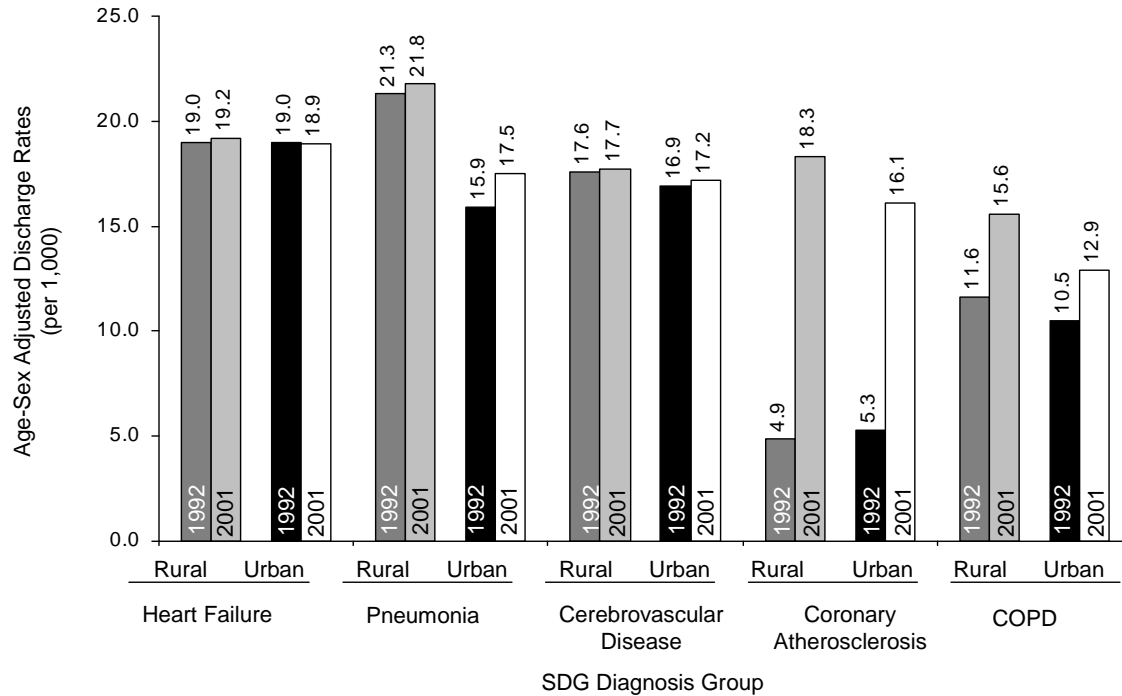
Figure III.4. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Medicaid Dual Enrollment, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- The discharge rates for all five of the common diagnoses were substantially higher in those who are dually enrolled.
- The discharge rates for coronary atherosclerosis and COPD among dually enrolled beneficiaries rose more rapidly than it did for other beneficiaries.

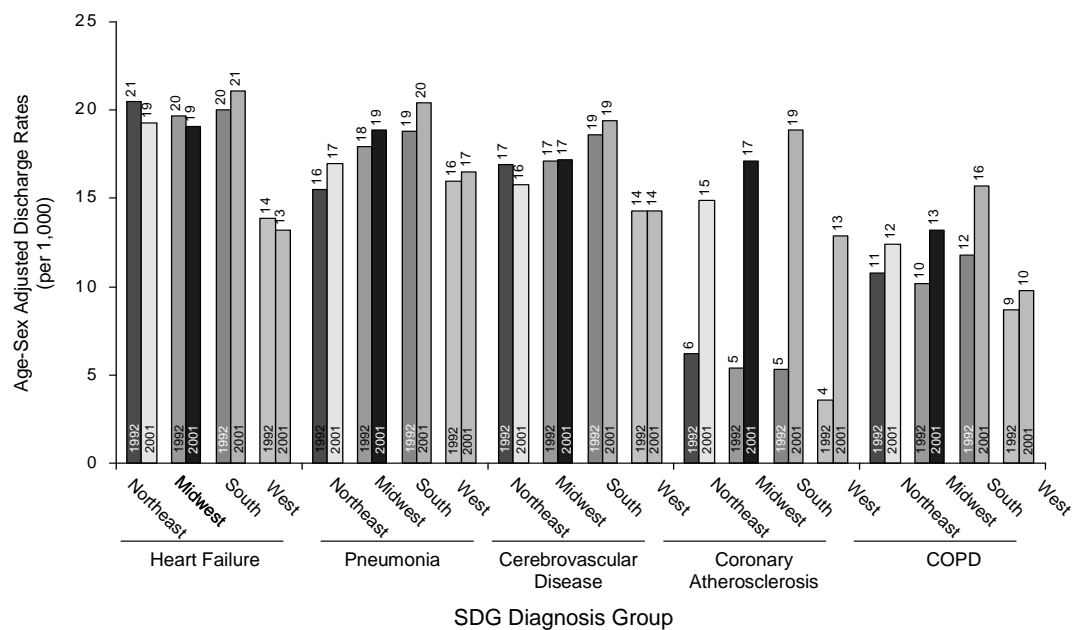
Figure III.5. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Urban/Rural Beneficiary Residence, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- For coronary atherosclerosis and COPD, the discharge rates were slightly higher in rural areas. The rates for the other three common diagnoses were approximately the same for rural and urban areas.
- The discharge rates for coronary atherosclerosis also rose more rapidly in rural areas than in urban areas.

Figure III.6. Discharge Rates per 1,000 Beneficiaries of Five Common Diagnoses by Region, 1992 and 2001

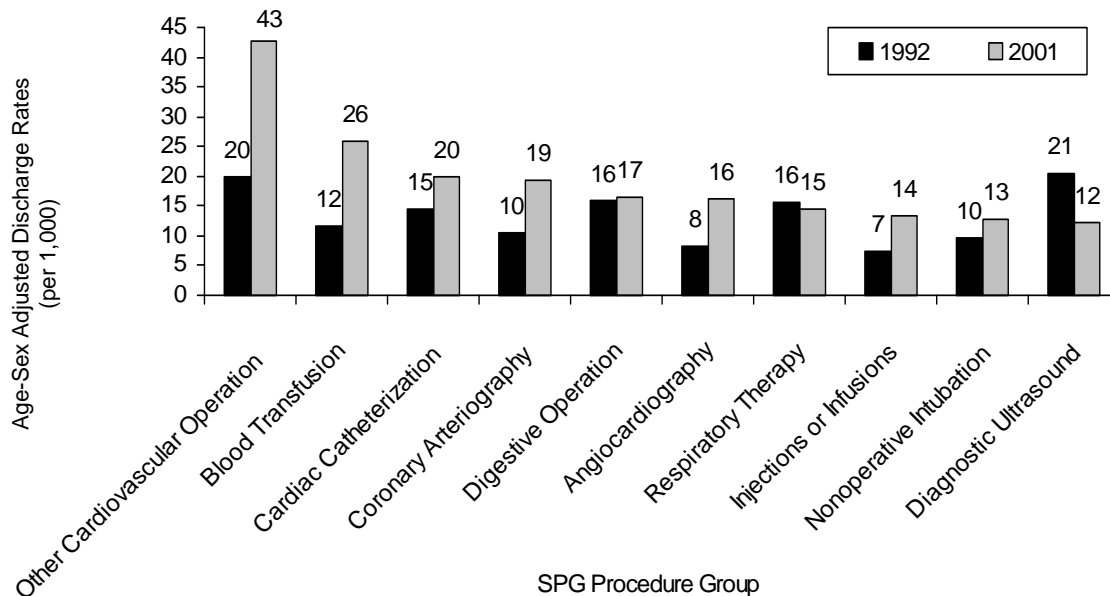


SOURCE: CMS MedPAR and Denominator databases

- For all five common diagnoses, the discharge rates were most common in the South and least common in the West.
- For each common diagnosis, the discharge rates grew as fast or faster in the South than in other regions.

B. Most Common Medical Procedures, 1992 and 2001

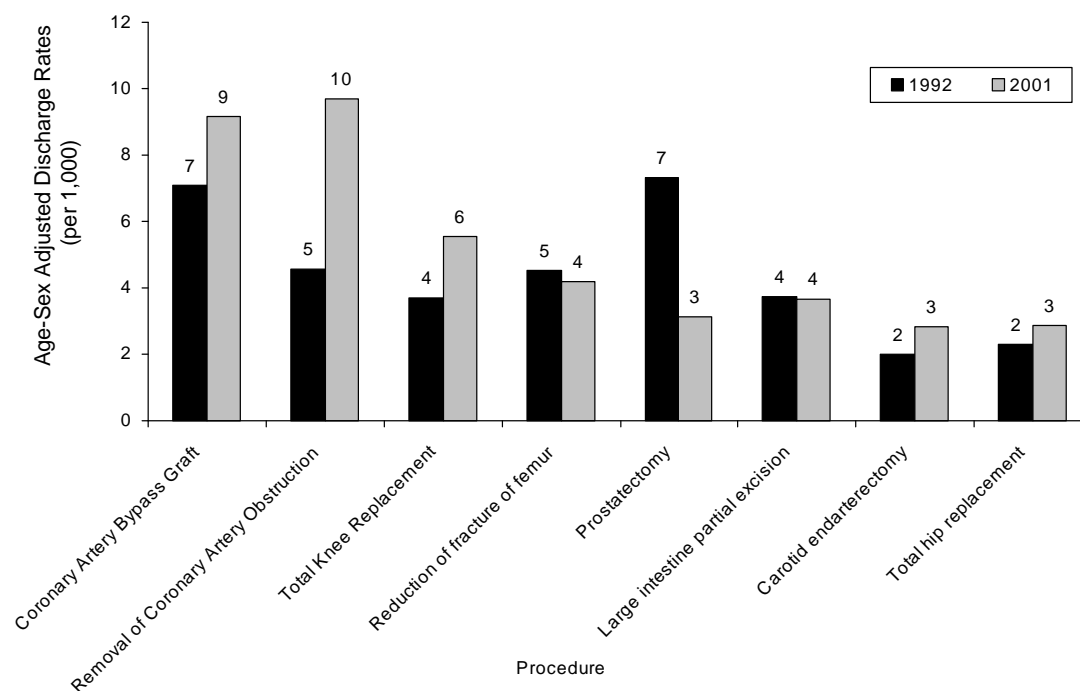
Figure III.7. Most Common Hospital Procedures per 1,000 Beneficiaries in 2001, Discharge Rates in 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- Among those who had a hospital stay, the most common procedures in 2001 were other cardiovascular operations, transfusion, cardiac catheterization, coronary arteriography, operations on the digestive system, other angiocardiography, respiratory therapy, injection or infusion of therapeutic or prophylactic substance; nonoperative intubation and irrigation, and diagnostic ultrasound. Procedures are defined in terms of ICD-9 codes, grouped into related groups using the CMS Surveillance Procedure Groups (SPGs), defined in Appendix C.
- In contrast to diagnosis rates, procedures rates did not remain the same from 1992-2001. Cardiac procedures became more common, and several other procedures became substantially less common. Other cardiovascular operations and blood transfusion more than doubled, and angiocardiography and coronary arteriography nearly doubled over the period. In contrast, diagnostic ultrasound and respiration therapy decreased. Other procedures, including circulatory monitoring, radioisotope scan, CAT scan, and prostatectomy decreased enough that, by 2001, they were no longer among the most common procedures (Table B.6).

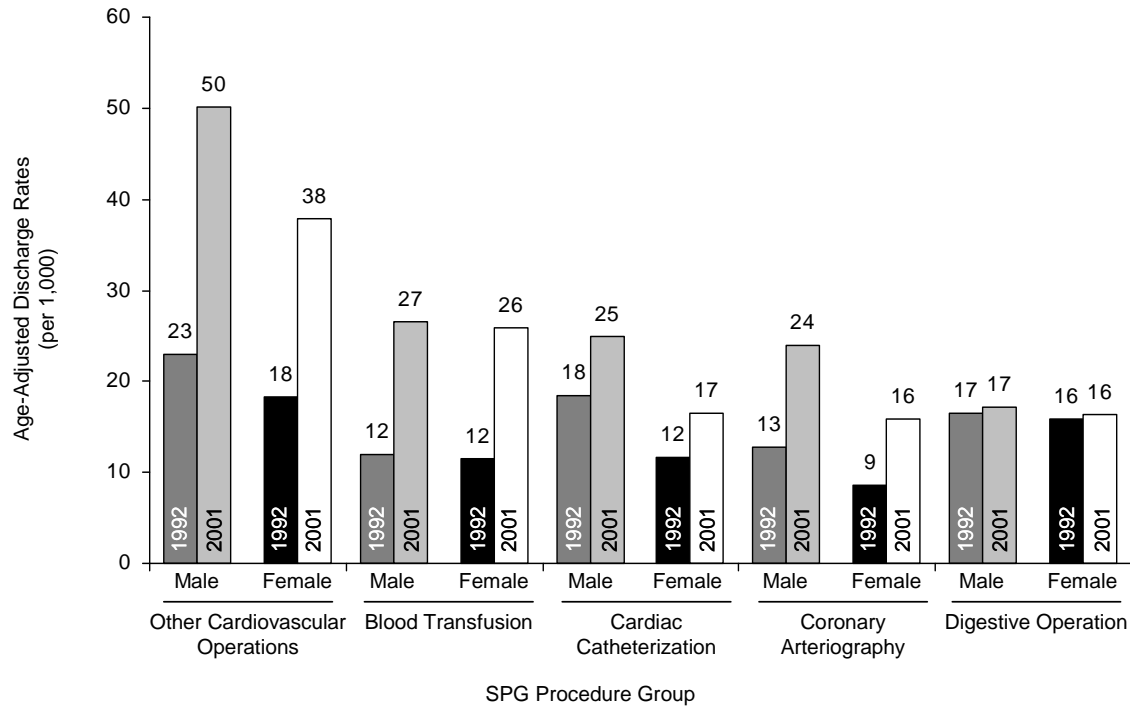
Figure III.8. Common Hospital Procedures per 1,000 Beneficiaries, Discharge Rates in 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- Figure III.8 presents discharge rates for several of the most common specific therapeutic procedures, as opposed to the broad procedure groups presented in Figure III.7. The most common procedures in 2001 were CABG, removal of coronary artery obstruction and total knee replacement.
- The procedures that grew most rapidly over the ten-year period were removal of coronary artery obstruction, total knee replacement, and carotid edarterectomy and total hip replacement.

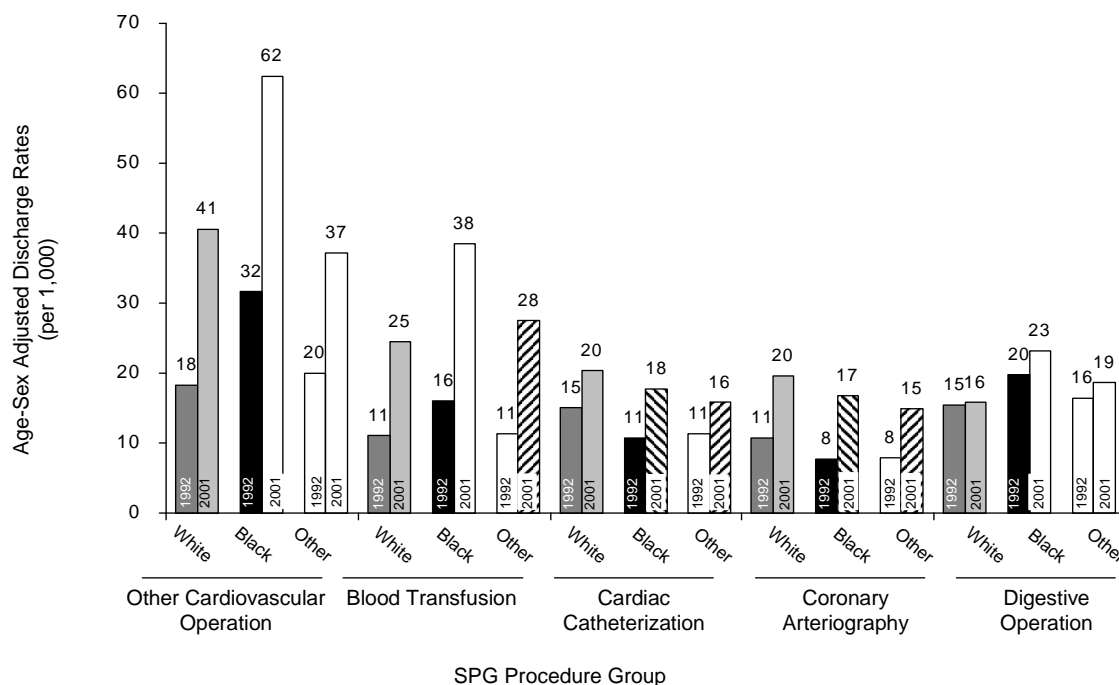
Figure III.9. Discharge Rates per 1,000 Beneficiaries of Five Common Procedures by Gender, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- The discharge rates for three of the five most common procedures—other cardiovascular operations, cardiac catheterization, and coronary arteriography—remained substantially higher for men than women. But for the other two most common procedures—blood transfusions and digestive operations—the discharge rates for men and women were roughly equal.
- Discharge rates for the five most common procedures grew at approximately the same rate for men and women.
- Detailed procedure discharge rates by demographic group, region, state, and year are presented in Table B.4.

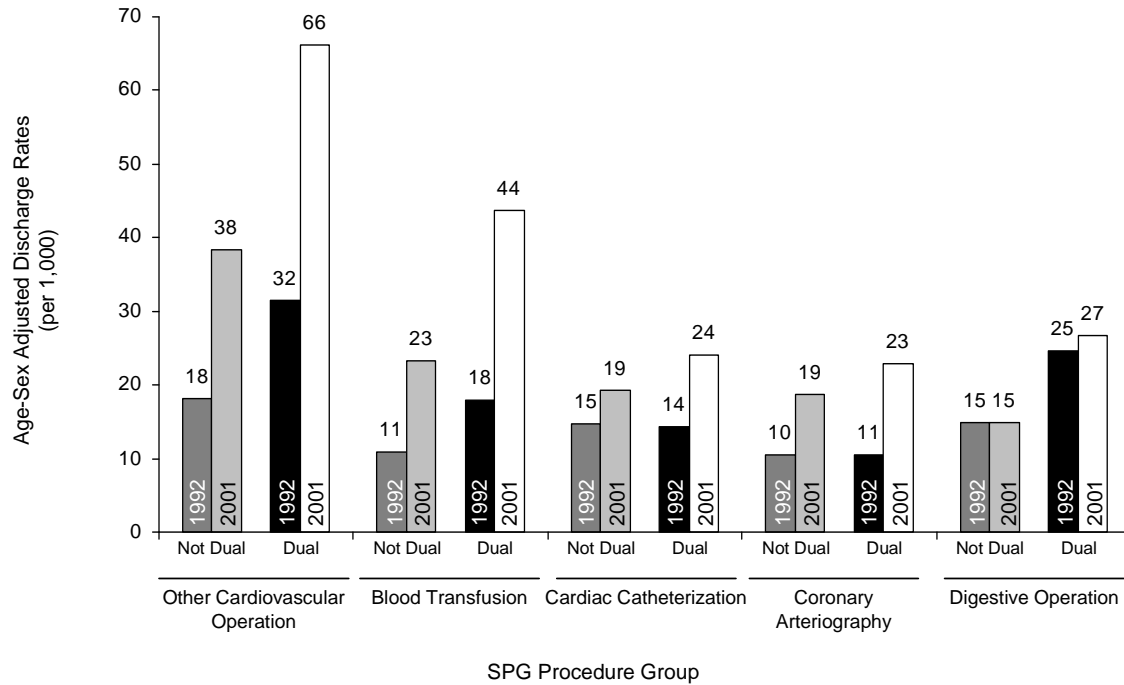
Figure III.10. Discharge Rates per 1,000 Beneficiaries of Five Common Procedures by Race, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- For three of the most common procedures—other cardiovascular operations, blood transfusions, and digestive operations—the discharge rates remained substantially higher for African Americans than for other groups.
- While discharge rates were higher for African Americans, the percent increase of these rates over the study period was similar across racial groups. The exception was digestive operations, which grew slightly more rapidly for African American beneficiaries.

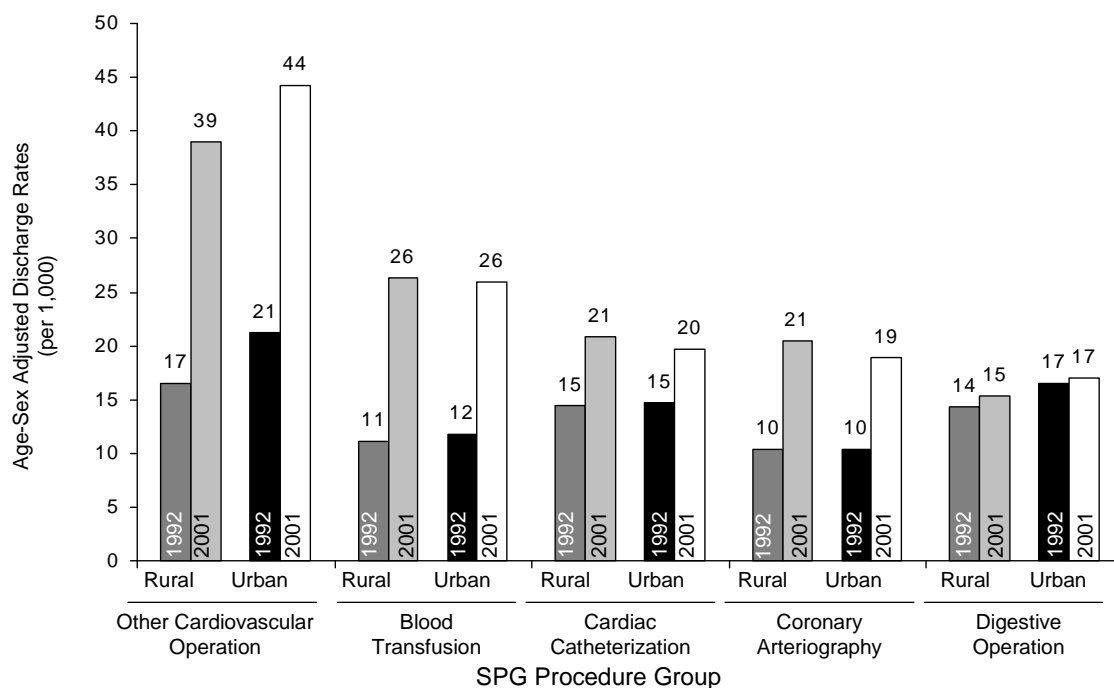
Figure III.11. Discharge Rates per 1,000 Beneficiaries of Five Common Procedures by Medicaid Dual Enrollment, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- The discharge rates for all five of the most common procedures were markedly higher for dually enrolled beneficiaries.
- While discharge rates were higher for dually enrolled beneficiaries, the percent increase of these rates over the decade was only slightly higher for dually enrolled for blood transfusions, cardiac catheterization, and coronary arteriography.

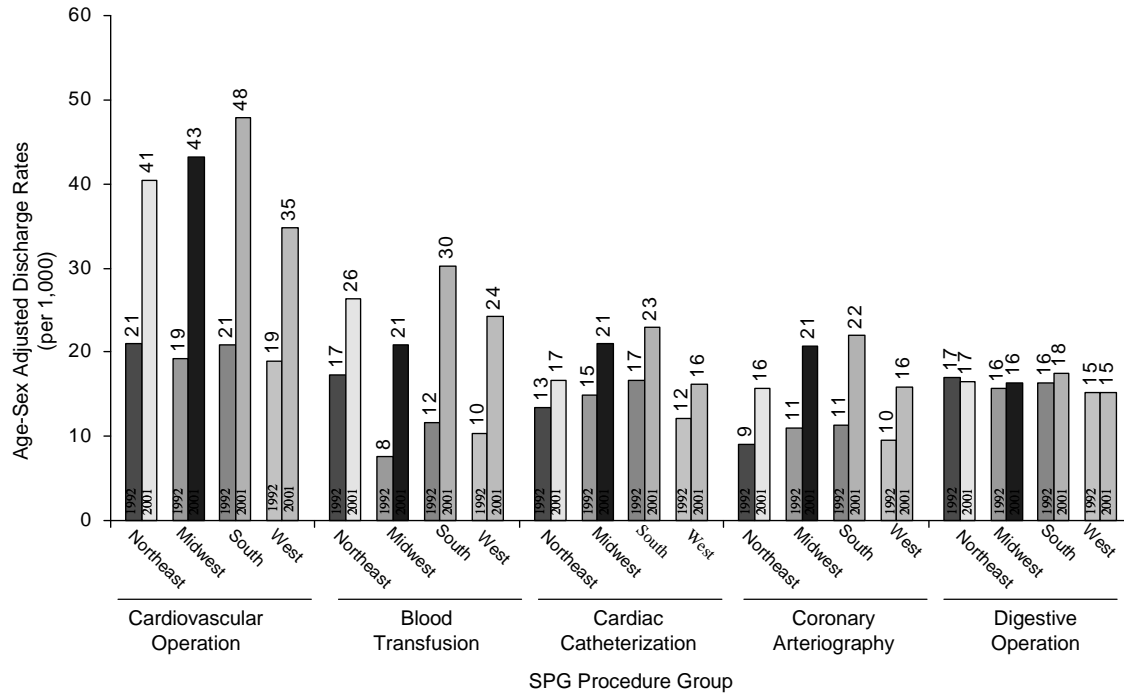
Figure III.12. Discharge Rates per 1,000 Beneficiaries of Five Common Procedures by Urban/Rural Beneficiary Residence, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- Other cardiovascular operations were somewhat more common among beneficiaries who live in urban areas relative to those in rural areas. The discharge rates for the remaining four common procedures were approximately the same in urban and rural areas.
- For four of the five common procedures, discharge rates grew slightly more rapidly in rural areas than in urban areas. The exception is the discharge rate for other cardiovascular operations, which grew at a similar rate in rural and urban areas.

Figure III.13. Discharge Rates per 1,000 Beneficiaries of Five Common Procedures, by Region, 1992 and 2001



SOURCE: CMS MedPAR and Denominator databases

- All five common procedures were more common in the South than in other regions. Four of the five procedures were least common in the West. Regional differences were sizable for all of the procedures except digestive operations.
- For all the procedures except digestive operations, discharge rates in the Northeast and the West grew more slowly than they did in other regions.

APPENDIX A

SPECIFICATIONS FOR BENEFICIARY CHARACTERISTICS AND UTILIZATION MEASURES

A. CHARACTERISTICS OF MEDICARE BENEFICIARIES

Measure	Medicare beneficiaries
Cases	Same as population
Population	Medicare Part A enrollees on July 1 of the reference year
Computation	<p>Tables:</p> <p>Counts—Number of enrollees in a stratum.</p> <p>Charts:</p> <p>Numerator— Number of enrollees in a stratum.</p> <p>Denominator— Number of enrollees in the population.</p>
Rationale	Assessing the generalizability of the FFS population.
Data Source	<i>Health Care Financing Review, Medicare and Medicaid Statistical Supplements</i> , 1992-2001, Tables 6, 8, and 9.
Exclusions	<p>Invalid (negative) or missing date of birth</p> <p>Date of death prior to the measurement year</p> <p>Beneficiaries residing outside of the United States as of March 31 of the year following the reference year except beneficiaries residing in Puerto Rico, Guam, and the Virgin Islands</p> <p>Missing or invalid values for state, sex, race, Medicare Status</p> <p>Refer to <i>Health Care Financing Review, Medicare and Medicaid Statistical Supplements</i>, for detailed exclusion criteria.</p>
Period	1992-2001
Stratifiers	<p>Age (0-54, 55-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95+) on July 1 of the reference year.</p> <p>Race (white, black, other)</p> <p>Sex</p> <p>Medicare eligibility status (aged, disabled, ESRD, aged with ESRD, disabled with ESRD). ESRD, aged with ESRD, disabled with ESRD are combined in the charts in the text.</p> <p>Dual enrollment defined as enrolled in Medicare Part A and Medicaid at least one month during the calendar year.</p> <p>Urban/rural based on the metropolitan statistical area (MSA) and Bureau of Economic Analysis (BEA) State and County Crosswalk File developed for the CMS' Prospective Payment System. All counties in an MSA are</p>

	<p>designated as urban; all other counties are considered rural.</p> <p>Census region of the beneficiary's residence on March 31 of the year following the reference year</p> <p>Census division of the beneficiary's residence on March 31 of the year following the reference year</p> <p>State of the beneficiary's residence on March 31 of the year following the reference year</p>
--	--

B. CHARACTERISTICS OF THE FFS POPULATION

Measure	Medicare FFS population
Cases	Same as population
Population	Eligible for Medicare in January of each calendar year, enrolled in Part A for the full year, and not enrolled in Medicare managed care at any point in the year. Beneficiaries who died during the calendar year but who would have otherwise qualified are included.
Computation	<p>Tables:</p> <p>Counts—Number of enrollees in a stratum.</p> <p>Charts:</p> <p>Numerator— Number of enrollees in a stratum.</p> <p>Denominator— Number of enrollees in the population.</p>
Rationale	Assessing the degree to which patterns of quality measures are due to changing demographic characteristics.
Data Source	Medicare Denominator File
Exclusions	<p>Invalid (negative) or missing date of birth</p> <p>Date of death prior to the measurement year</p> <p>Beneficiaries residing outside of the United States as of March 31 of the year following the reference year except beneficiaries residing in Puerto Rico, Guam, and the Virgin Islands</p> <p>Missing or invalid values for state, sex, race, Medicare Status</p>
Period	1992-2001
Stratifiers	<p>Age (0-54, 55-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95+) on July 1 of the reference year.</p> <p>Race (white, black, other)</p> <p>Sex</p> <p>Medicare eligibility status (aged, disabled, ESRD, aged with ESRD, disabled with ESRD). ESRD, aged with ESRD, disabled with ESRD are combined in the charts in the text.</p> <p>Dual enrollment defined as enrolled in Medicare Part A and Medicaid at least one month during the calendar year.</p> <p>Urban/rural based on the metropolitan statistical area (MSA) and Bureau of Economic Analysis (BEA) State and County Crosswalk File developed for the CMS' Prospective Payment System. All counties in an MSA are</p>

	<p>designated as urban; all other counties are considered rural.</p> <p>Census region of the beneficiary's residence on March 31 of the year following the reference year</p> <p>Census division of the beneficiary's residence on March 31 of the year following the reference year</p> <p>State of the beneficiary's residence on March 31 of the year following the reference year</p>
--	--

C. DISCHARGES FROM SHORT-STAY HOSPITALS BY PRINCIPAL DIAGNOSIS

Measure	Discharge rates by principal diagnosis
Cases	Same as population, by SDG.
Population	Eligible for Medicare in January of each calendar year, enrolled in Part A for the full year, and not enrolled in Medicare managed care at any point in the year. Beneficiaries who died during the calendar year but who would have otherwise qualified are included.
Computation	<p>Numerator—Number of discharges in each Surveillance Diagnostic Group (SDG) SDGs are defined in Appendix C</p> <p>Denominator—Number of beneficiaries in the FFS population. Rates measured per 1,000 beneficiaries.</p>
Rationale	Indicates health conditions of Medicare beneficiaries for prioritizing quality initiatives.
Data Sources	<p>MedPAR File</p> <p>Denominator File</p> <p>CMS Cross-Reference File</p>
Exclusions	<p>Missing or invalid values for state, sex, race, Medicare Status</p> <p>Discharges from all hospitals other than short-stay hospitals</p> <p>Duplicate records</p> <p>Discharges from stand-alone emergency rooms</p> <p>Discharges with invalid procedure codes</p> <p>Discharges for Medicare beneficiaries whose Health Insurance Claim Number (HICNO) does not have a match in CMS's Cross-Reference File</p> <p>Overlapping beneficiary acute-care, short-stay hospital claims</p>
Adjustment	Age/sex adjusted rates of discharges by direct standardization using the Medicare Part A FFS population as of July 1, 1999, as the standard population.
Period	1992-2001
Stratifiers	<p>Age (0-54, 55-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95+) on July 1 of the reference year.</p> <p>Race (white, black, other)</p> <p>Sex</p> <p>Medicare eligibility status (aged, disabled, ESRD, aged with ESRD, disabled with ESRD). ESRD, aged with ESRD, disabled with ESRD are</p>

	<p>combined in the charts in the text.</p> <p>Dual enrollment defined as enrolled in Medicare Part A and Medicaid at least one month during the calendar year.</p> <p>Urban/rural based on the metropolitan statistical area (MSA) and Bureau of Economic Analysis (BEA) State and County Crosswalk File developed for the CMS' Prospective Payment System. All counties in an MSA are designated as urban; all other counties are considered rural.</p> <p>Census region of the beneficiary's residence on March 31 of the year following the reference year</p> <p>Census division of the beneficiary's residence on March 31 of the year following the reference year</p> <p>State of the beneficiary's residence on March 31 of the year following the reference year</p>
--	--

D. DISCHARGES FROM SHORT-STAY HOSPITALS BY PROCEDURES

Measure	Discharge rates by procedure
Cases	Same as population, by SPG.
Population	Eligible for Medicare in January of each calendar year, enrolled in Part A for the full year, and not enrolled in Medicare managed care at any point in the year. Beneficiaries who died during the calendar year but who would have otherwise qualified are included.
Computation	<p>Numerator—Number of discharges in each Surveillance Procedures Group (SPG). SPGs are defined in Appendix C.</p> <p>Denominator—Number of beneficiaries in the FFS population. Rates measured per 1,000 beneficiaries.</p>
Rationale	Indicates health utilization of Medicare beneficiaries for selecting the medical procedures to monitor the quality of.
Data Sources	<p>MedPAR File</p> <p>Denominator File</p> <p>CMS Cross-Reference File</p>
Exclusions	<p>Missing or invalid values for state, sex, race, Medicare Status</p> <p>Discharges from all hospitals other than short-stay hospitals</p> <p>Duplicate records</p> <p>Discharges from stand-alone emergency rooms</p> <p>Discharges with invalid procedure codes</p> <p>Discharges for Medicare beneficiaries whose Health Insurance Claim Number (HICNO) does not have a match in CMS's Cross-Reference File</p> <p>Overlapping beneficiary acute-care, short-stay hospital claims</p>
Adjustment	Age/sex adjusted rates of discharges by direct standardization using the Medicare Part A FFS population as of July 1, 1999, as the standard population.
Period	1992-2001
Stratifiers	<p>Age (0-54, 55-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95+) on July 1 of the reference year.</p> <p>Race (white, black, other)</p> <p>Sex</p>

	<p>Medicare eligibility status (aged, disabled, ESRD, aged with ESRD, disabled with ESRD). ESRD, aged with ESRD, disabled with ESRD are combined in the charts in the text.</p> <p>Dual enrollment defined as enrolled in Medicare Part A and Medicaid at least one month during the calendar year.</p> <p>Urban/rural based on the metropolitan statistical area (MSA) and Bureau of Economic Analysis (BEA) State and County Crosswalk File developed for the CMS' Prospective Payment System. All counties in an MSA are designated as urban; all other counties are considered rural.</p> <p>Census region of the beneficiary's residence on March 31 of the year following the reference year</p> <p>Census division of the beneficiary's residence on March 31 of the year following the reference year</p> <p>State of the beneficiary's residence on March 31 of the year following the reference year</p>
--	--